

# FlexWave™ MMX 7000

## Compact WiMAX Base Station



The FlexWave™ MMX 7000 is a member of the FlexWave MMX family, a line of mobile WiMAX broadband wireless access systems based on the 802.16e mobile standard, WiMAX forum Wave2 (MIMO) certification.

The MMX 7000 compact base station is an ideal, cost-effective solution for wireless access services designed for point-to-multipoint broadband wireless access for mobile and fixed applications in various conditions and locations. The MMX 7000 is a full outdoor base station, designed for simple installation and mounting on poles, street lamps or walls.

The FlexWave MMX 7000 is a one-sector station that supports up to 1000 subscriber units. By adding switch routing units, the system can be extended to as many sectors as required and can support additional subscribers and bandwidth.

The FlexWave base station provides all the functionality necessary to communicate with fixed and mobile subscriber units according to the service criteria and customer Service Level Agreements (SLAs). It also supports the necessary end-to-end Quality of Service (QoS) by connecting to the service provider's network backbone.

The FlexWave system uses OFDMA radio technology, which is robust in adverse channel conditions and enables Non-Line-Of-Sight (NLOS) operation. This allows for improved coverage, while maintaining a high level of spectral efficiency. Modulation and coding are continuously adapted to prevailing link conditions, ensuring an optimal balance between robustness and efficiency. The use of STC/MRC and MIMO radio technologies optimize link performance to ensure maximum bandwidth and service coverage.

The MMX 7000 is supported by the FlexWave NMS management system.

SPEC SHEET



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### Features

- Low cost compact base station for lower OPEX and CAPEX
- All outdoor unit – simple installation with easy mounting on walls, poles, street lamps
- Supporting 1.X, 2.X, 3.X GHz bands

### MMX 7000 Highlights

- Mobile-WiMAX compliance based on IEEE 802.16e standard and WiMAX Forum Wave2 (MIMO) certification
- Support of worldwide WiMAX deployments in the 1.X, 2.X and 3.X GHz bands
- Daisy Chain architecture to support multi-sector sites
- Scalable architecture, supporting up to 1000 subscribers on the same unit
- Low cost of ownership - ideal solution for entry-level deployment with a pay-as-you-grow buildout for rapid penetration into new market segments with minimal CAPEX
- WiMAX relay (802.16j) support – for better network performance, higher bandwidth, longer range and lower networking costs (in development)
- Outdoor installation – easy to install on walls, poles and street lamps
- Optimize link performance in NLOS conditions through STC/MRC and MIMO radio technologies
- Adaptive modulation to optimize throughput and facilitate performance robustness
- Automatic Transmit Power Control (ATPC) to allow for optimal network deployment and interference avoidance
- Numerous applications and services - guaranteed voice, video and data services based on advanced QoS levels and a variety of classification/prioritization schemes

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### Specifications

#### RADIO AND MODEM

**Frequency:**

MMX 7113-24: 1350 to 1400 MHz  
 MMX 7114-24: 1400 to 1525 MHz  
 MMX 7125-24: 2496 to 2690 MHz  
 MMX 7135-24: 2496 to 2690 MHz  
 MMX 7137-24: 3600 to 3800 MHz

**Radio Access Method:**

IEEE802.16-2005 (16e OFDMA)

**Compatibility:**

WiMAX Forum Wave 2 Profile

**Operation Mode:**

TDD

**Channel Bandwidth:**

3.5Mhz, 5 MHz, 7MHz, 10 MHz

**Frequency Resolution:**

0.25 MHz

**Antennas:**

Integral Omni External Sector

**Number of Antennas Default Antenna:**

2

**Default Antenna:**

Omni

**Antennas Connectors:**

2x N-Type, 50 Ohm, lightning protected STC-MIMO

**Diversity Support:**

2 x 10W; 2 x 45W; 2 x 90W

**Output Power per Sector[P1dB]:**

Type 10W: 30 dBm +/-1dB maximum

**Output Power (average):**

Type 45W: 36 dBm +/-1dB maximum

**FFT/Modulation:**

512/1024 FFT points; QPSK, 16QAM, 64QAM

**FEC:**

Convolution Code and Turbo Code

**TPC:**

15dB

**Synchronization:**

GPS or IEEE1588 (optional)

#### NETWORK INTERFACES

**Network:**

40.5-60VDC 10/100BaseT Half/Full Duplex IEEE 802.3 CSMA/CD

Fiber Optic - optional

**ASN GW Compatibility:**

WiMAX Forum R6 Profile C Compatible with CISCO ASN-GW

#### CONFIGURATION AND MANAGEMENT

**Management:**

SNMP

**SNMP Agent:**

SNMP ver 2 client: MIB II (RFC 1213) Private Wi-Max MIBs

**Software Upgrade:**

FTP

**Remote Configuration:**

FTP

#### MECHANICAL

**Dimensions [HxWxD]:**

60cm x 27cm x 10cm/23.6" x 10.6" x 4"

**Weight:**

<15Kg / 33 lbs

#### POWER INTERFACE

**Input:**

48VDC

**Power Consumption:**

Type 10W: 75Watt maximum Type 45W: 140Watt maximum

#### ENVIRONMENTAL

**Operating Temperature:**

-40°C to +55°C

**Operating Humidity:**

5%-95% non condensing, weather protected

#### STANDARDS COMPLIANCE

**EMC:**

FCC Part 15, Subpart B, Class A ETSI EN 301489-1/4

**Safety:**

TUV-UL 60950-1 IEC 60950-1

**Environmental:**

ETS 300 019:

Part 2-1 T 1.2 & Part 2-2 T 2.3

Part 2-4 T 4.1E

IP66

**Immunity:**

EN61000-4-2

EN61000-4-4

EN61000-4-5

**Radio:**

FCC Part 27 ETSI EN302 326

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